M200X3/M200X3 RD
M300X3/M300X3 RD

INSPECTION REPORT

SER.NO. [redacted]

PID [redacted]

Inspected Date [redacted]

Inspected by Y. Kawazoe

Y. Kawazoe

Brother Industries, Ltd.

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BROTHER COMPACT MACHINING CENTER SPEEDIO

M200X3 / M200X3 RD
M300X3 / M300X3 RD Inspection report

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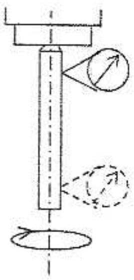
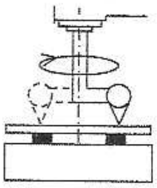
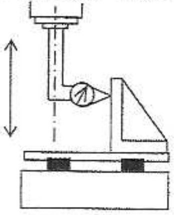
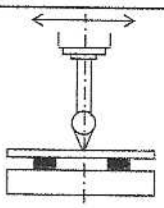
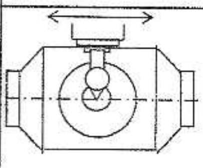
1. Static accuracy

* The test procedure is based on ISO230-1:1996.

No.	Item	Test method	Illustration	Tolerance(mm)	Result(mm)
1	Run-out of spindle internal taper	Insert a test bar into the spindle and apply a test indicator at the roof and the tip of the test bar. The maximum difference of the readings during spindle rotation shall be the measurement value.		At roof of test bar 0.010	0.003
				At 200 mm distance along test bar 0.012	0.010
2	Squareness of spindle axis line and X-axis (Y-axis) travel	Apply a test indicator mounted to the spindle to a straight ruler positioned parallel to the X-axis (Y-axis) and swing the test indicator. The difference of the readings of the test indicator shall be the measurement value.		X axis 0.020/300 dia.	0.005
				Y axis 0.020/300 dia.	0.010
3	Squareness of Z-axis travel and X-axis (Y-axis) travel	Place a square ruler on a straight ruler positioned parallel to the X-axis (Y-axis). Apply a test indicator mounted to the spindle to the square ruler. Move the spindle head in the Z-axis direction. The maximum difference of the readings of the		X axis 0.012/300	0.006
				Y axis 0.012/300	0.007
4	Parallelism of table surface and X-axis (Y-axis) travel	[A axis 0°] Apply a test indicator to a straight ruler positioned parallel to table surface and move the column. The maximum difference of the readings of the test indicator shall be the measurement value.		X axis M200X3 0.020/200 M300X3 0.020/200	0.006
				Y axis 0.020/440	0.012
5	A-C squareness (parallelism of table surface and X-axis travel)	[A axis +90°] Apply a test indicator to table surface and move the column. The maximum difference of the readings of the test indicator shall be the measurement value. (Measure at the ends; avoid the concave table center)		X axis M200X3 0.014/140 M300X3 0.011/170	0.002

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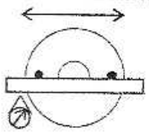
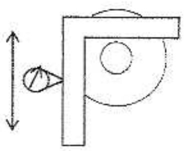
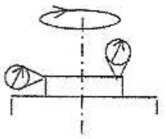
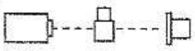
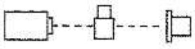
No.	Item	Test method	Illustration	Tolerance(mm)	Result(mm)
6	Parallelism of spindle X-axis travel and centerline of two centering holes	With C and A axes 0°, set reference pins in 2 centering holes and apply a straight ruler to the side of the pins. Move spindle in X-axis direction. The maximum difference of the readings of the test indicator shall be the measurement value.		X axis M200X3 0.010/200 M300X3 0.015/300	0.002
7	Squareness of X- and Y-axis travel	With C and A axes 0°, place a square ruler on the table with one side being parallel to table X-axis travel and move the column in Y-axis direction. The maximum difference of the readings of the test indicator shall be the measurement value.		0.016/400	0.002

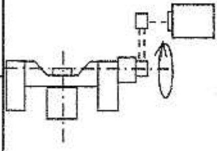
* The test procedure is based on ISO13041-1:2004.

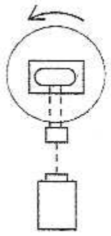
No.	Item	Test method	Illustration	Tolerance(mm)	Result(mm)
8	Run-out of table surface and side	Apply a test indicator to the surface and side of the table and rotate the table. The maximum difference of the readings of the test indicator shall be the measurement value.		Surface run-out M200X3 0.008/140 dia. M300X3 0.010/170 dia.	0.003
				Side runout M200X3 0.005/140 dia. M300X3 0.008/170 dia.	0.004

2. Positioning accuracy of straight travel axis

No.	Item	Test method	Illustration	Tolerance(mm)	Result(mm)
1	Bidirectional positioning accuracy ISO230-2:1988	Measure at all length of the measurement axis using a laser measurement device. ・Number of target positions: 5 ・Warm up: Valid ・Feed rate: Rapid traverse rate ・Slide position in which the test is not conducted: The center of the stroke		X axis 0.006 − 0.020	0.009
				Y axis 0.006 − 0.020	0.010
				Z axis 0.006 − 0.020	0.010
2	Bidirectional positioning repeatability ISO230-2:2014	Measure at all length of the measurement axis using a laser measurement device. ・Number of target positions: 5 ・Warm up: Valid ・Feed rate: Rapid traverse rate ・Slide position in which the test is not conducted: The center of the stroke		X axis ＜0.004	0.0017
				Y axis ＜0.004	0.0025
				Z axis ＜0.004	0.0017

3. Positioning accuracy of rotating axis

No.	Item	Test method	Illustration	Tolerance(sec)	Result(sec)
1	Bidirectional positioning accuracy ISO230-2:2014	Measure at all areas of the measurement axis using a laser measurement device ・Number of target positions: 0, +90° and 5 arbitrary positions		A axis 28	15
2	Bidirectional positioning repeatability ISO230-2:2014	Measure at all areas of the measurement axis using a laser measurement device ・Number of target positions: 0, +90° and 5 arbitrary positions		A axis 16	15

No.	Item	Test method	Illustration	Tolerance(sec)	Result(sec)
1	Bidirectional positioning accuracy ISO230-2:2014	Measure at all areas of the measurement axis using a laser measurement device ・Number of target positions: 0, 90, 180, 270, 360° and 8 arbitrary positions		C axis 28	9
2	Bidirectional positioning repeatability ISO230-2:2014	Measure at all areas of the measurement axis using a laser measurement device ・Number of target positions: 0, 90, 180, 270, 360° and 8 arbitrary positions		C axis 16	7

1. Conduct the test after installing the machine in a specified installation environment and leveling it.
For the adjustment procedure, follow "4. Installation" of the Safety Manual.
2. Conduct the test after leaving the machine for sufficient time in an environment which does not give a local temperature change to the machine and in which the room temperature change per day is ±1°C.
3. Conduct the test when the machine is in the stop condition and under no load condition.
4. Conduct the positioning test after taking sufficient time after turning on the machine.
5. Execute warm up of the positioning test for a certain period of time until the location deviation stabilizes regardless of the number of tests conducted.
6. The test result is at the time of shipment. Please note that the machine may not achieve the accuracy in this test report except under the above conditions and environments.